

CLAIMS

1. A method of generating class models of semantically classifiable data of known classes, comprising the steps of:
 - 5 for each known class:
 - extracting a plurality of sets of characteristic feature vectors from respective portions of a training set of semantically classifiable data of one of the known classes; and
 - combining the plurality of sets of characteristic features into a respective
 - 10 plurality of N -dimensional feature vectors specific to the known class;
 - wherein respective pluralities of N -dimensional feature vectors are thus obtained for each known class; the method further comprising:
 - analysing the pluralities of N -dimensional feature vectors for each known class to generate a set of M basis vectors, each being of N -dimensions, wherein $M \ll N$; and
 - 15 for any particular one of the known classes:
 - using the set of M basis vectors, mapping each N -dimensional feature vector relating to the particular one of the known classes into a respective M -dimensional feature vector; and
 - using the M -dimensional feature vectors thus obtained as the basis for or
 - 20 as input to train a class model of the particular one of the known classes.
2. A method of identifying the semantic class of a set of semantically classifiable data, comprising the steps of:
 - extracting a plurality of sets of characteristic feature vectors from respective
 - 25 portions of the set of semantically classifiable data;
 - combining the plurality of sets of characteristic features into a respective plurality of N -dimensional feature vectors;
 - mapping each N -dimensional feature vector to a respective M -dimensional feature vector, using a set of M basis vectors previously stored, wherein $M \ll N$;
 - 30 comparing the M -dimensional feature vectors with stored class models respectively corresponding to previously identified semantic classes of data; and
 - identifying as the semantic class that class which corresponds to the class model which most matched the M -dimensional feature vectors.

3. A method according to any of the preceding claims, wherein the set of semantically classifiable data is audio data.
4. A method according to claims 1 or 2, wherein the set of semantically classifiable
5 data is visual data.
5. A method according to claims 1 or 2, wherein the set of semantically classifiable data contains audio and visual data.
- 10 6. A method according to any of the preceding claims, wherein the analysing step uses Principal Component Analysis (PCA).
7. A method according to any of claims 1 to 5, wherein the analysing step uses Kernel Discriminant Analysis (KDA).
- 15 8. A method according to any of the preceding claims, wherein the combining step further comprises concatenating the respectively extracted characteristic features into the respective N -dimensional feature vectors.
- 20 9. A system for generating class models of semantically classifiable data of known classes, comprising:
feature extraction means for extracting a plurality of sets of characteristic feature vectors from respective portions of a training set of semantically classifiable data of one of the known classes; and
25 feature combining means for combining the plurality of sets of characteristic features into a respective plurality of N -dimensional feature vectors specific to the known class;
the feature extraction means and the feature combining means being repeatably operable for each known class, wherein respective pluralities of N -dimensional
30 feature vectors are thus obtained for each known class;
the system further comprising:
processing means arranged in operation to:
analyse the pluralities of N -dimensional feature vectors for each known class to generate a set of M basis vectors, each being of N -dimensions, wherein $M \ll N$;
35 and

for any particular one of the known classes:

use the set of M basis vectors, map each N -dimensional feature vector relating to the particular one of the known classes into a respective M -dimensional feature vector; and

5 use the M -dimensional feature vectors thus obtained as the basis for or as input to train a class model of the particular one of the known classes

10. A system for identifying the semantic class of a set of semantically classifiable data, comprising:

10 feature extraction means for extracting a plurality of sets of characteristic feature vectors from respective portions of the set of semantically classifiable data;

feature combining means for combining the plurality of sets of characteristic features into a respective plurality of N -dimensional feature vectors;

15 storage means for storing class models respectively corresponding to previously identified semantic classes of data; and

processing means for:

mapping each N -dimensional feature vector to a respective M -dimensional feature vector, using a set of M basis vectors previously generated by the third aspect of the invention, wherein $M \ll N$;

20 comparing the M -dimensional feature vectors with the stored class models; and

identifying as the semantic class that class which corresponds to the class model which most matched the M -dimensional feature vectors.